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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXV. MARCH, 1914. No. 3.

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New American Bees of the Genus Halictus (Hym.).

By MRS. MARION DURBIN ELLIS, Boulder, Colorado.

The following new species of bees belonging to the subgenus *Chloralictus* Robertson were described in the zoological laboratory of the University of Colorado. The material and types are in the collection of Prof. T. D. A. Cockerell, except where otherwise stated. I wish to thank Prof. Cockerell for his direction in this work and for comparing some bees with types in the National Museum.

Halictus zophops sp. nov.

♀ Length 6.7 mm. Head and thorax dark green; abdomen black with metallic green reflections.

Facial quadrangle a little longer than broad, clypeus produced for about two-thirds its length beyond the eyes. Face very closely and rather coarsely punctured above the antennae, less so on the lateral areas and supraclypeal area; clypeus mostly black, somewhat shiny, and very little punctured. Antennae entirely black.

Pleurae opaque and punctured but without coarse sculpture. Metapleura with very weak cross plicae throughout its length. Mesonotum finely lineolate, the fine sharp punctures scattered in the middle but very close and crowded on either side and in front of the distinct parapsidal groove and along the posterior margins. Scutellum with a sharp, closely punctured median groove. Truncation of the metathorax with a salient rim, the surface with numerous weak striae radiating upward and outward from the center of the base; basal area without a rim, the edge lineolate, rounded and elevated in the middle, central plica a little stronger than those immediately on either side of it and appearing as a stem from which the others branch off at right angles, plicae at the sides strong and continued over the sides of the segment. Tegulae shiny, reddish brown, paler in front.

Wings a little brownish; stigma and nervures light brown, costal nervure darker.

Legs entirely black, with rich golden brown pubescence.

Abdomen broad; finely punctured throughout; apical margin of the segments broad, finely lineolate, not paler than the rest of the segments, discs of the third to fifth segments and sides of the first and second segments with scant yellowish pubescence.

Pubescence rather scant throughout, ochraceous above, paler beneath.

Habitat.—Boulder, Colorado. 1 (type) at flowers of *Pulsatilla hirsutissima* (Pursh) Britton, April 13, 1913 (M. D. Ellis.)

This species is closely related to *H. versatus* Robertson and *H. euryceps,* as is shown by the type of the metathorax and the crowding of the punctures of the mesonotum about the parapsidal grooves. It is distinguished from both of these species by the produced clypeus and the longer face, by the metallic reflections on the abdomen and by the wholly black legs.

Halictus euryceps sp. nov.

♀ Length 7 mm. Head and thorax dark blue green or greenish blue, abdomen dark brown to nearly black.

Head broad, face round, a little broader than long, with strong close punctures and sharp lineolation; clypeus not produced. Antennae entirely blackish brown.

Mesonotum opaque, with fine scattered punctures, becoming crowded in the area just to either side of the parapsidal grooves and along the posterior margin, finely and sharply lineolate. Disc of the metathorax with a low, sharp rim on either side below; basal area entirely without a rim, with relatively few, simple plicae usually reaching the margin

on the sides, surface very finely lineolate. Tegulae dark brown, impunctate.

Wings brownish hyaline, stigma and nervures dark transparent brown.

Legs black at the base, shading to dark reddish brown on the tarsi.

Abdomen broad and rather blunt, almost black, the margins of the segments never lighter than the rest of the dorsal surface; the third, fourth and fifth and a triangle at the sides of the second segment covered with pale grayish white hair which is faintly tinged with buff only around the anal rima.

Pubescence elsewhere rather scant, white on the pleurae and somewhat reddish buff on the legs.

Habitat.—Beulah, New Mexico, altitude 8000 feet, 1 (type) and nine others, the end of August; 1, July 16; 1, at flowers of *Heracleum lanatum,* July 24; 2, nesting, July 27; 2, on foliage of *Veratrum,* Aug. 3, 1902; 1, Aug. 16; 1, Aug. 18 (T. D. A. Cockerell); 6, at flowers of *Polemonium* aff, *coeruleum,* Aug. 18; 6, August 18, 1, August 16; 2, August 24; 4, August 25, 1899; 3, August 28, 1899; and 10, (W. Porter); Santa Fé, New Mexico, 1, at flowers of *Solidago canadensis,* September 20 (Cockerell); Dailey Canon, New Mexico, 1, August 10 (W. P. & T. D. A. Cockerell); Green Mountain Falls, Colorado, 1, August 11 (J. W. Frey); Copeland Park, 1, September 6, 1907 (S. A. Rohwer); White Mountains, New Mexico, north fork of Rio Ruidoso, altitude 8200 feet, 1, at flowers of *Solidago trinervata,* August 17 (Townsend); 1, Beulah, New Mexico, at flowers of *Frasera,* July 7 (W. P. Cockerell). All the specimens enumerated, except the type, are to be considered cotypes.

This species is very closely related to *H. versatus* Robertson from which it differs in the dark, not testaceous tegulae, the brownish wings, the lack of paler margins on the abdominal segments, the grayish white, not yellowish, abdominal pubescence, and the dark tarsi. *H. versatus* is a widely distributed and very variable species; it is therefore not safe to say that the few plicae on the basal area of the metathorax of *H. euryceps* separates it from *H. versatus,* although these plicae are usually much more numerous in the case of *H. ver-*

satus. The same is also true of the larger size which is almost constant for *H. euryceps*. *H. zophops* is also closely related to *H. euryceps* and *H. versatus*, but differs from both in the produced clypeus and the faintly metallic tinge of the abdomen.

Halictus jamaicae sp. nov.

♀ Length 4 to 4.5 mm. Head, pleurae and metathorax dark metallic green, mesonotum more brassy, sometimes with a coppery reflection; abdomen shiny piceous.

Facial quadrangle square, clypeus produced less than one half its length below the eyes; face somewhat shiny, although finely lineolate throughout and with numerous fine punctures, especially close above the antennae; lateral areas of the face with whitish pubescence; distal half of the clypeus very dark brown.

Mesonotum sharply and finely lineolate; the punctures fine and scattered, except in the areas just outside of the parapsidal grooves and along the posterior margin, where they are closely crowded; median groove distinct. Entire basal area of the metathorax very distinctly lineolate; the margin elevated for only a short distance on either side of the middle; rugae weak, turning laterally on either side of the short middle ridge and continued over the side of the segment. Tegulae testaceous, impunctate.

Legs dark brown to black, knees and tarsi all testaceous.

Wings faintly dusky; stigma and nervures dark brown.

Abdomen rather slender, the first, second and third segments a little inflated on either side, just above the broad apical margins; black with brown or sometimes faint metallic reflections, very shiny in spite of the very fine, shallow and close punctures; apical margin of each segment dark testaceous, impunctate.

Pubescence scant; slightly buffy on the legs, the fifth abdominal segment, the mesonotum and the free margin of the clypeus, white on the lateral areas of the face, the cheeks and the pleurae.

♂ 4.5 to 5 mm. long. Quite like the female; the abdomen more slender, the apical margin of each segment narrow and distinctly constricted; face triangular, clypeus more produced, entirely green and evenly punctured like the lateral areas of the face, mesonotum less lineolate. Tegulae dark brown, a very little elongate and slightly pointed behind, a few weak punctures along the posterior margin, otherwise impunctate. Second submarginal cell little more than one-half as long as the third. Face and cheeks more pubescent.

Habitat.—Liguanea Plain, Jamaica, females 1 (type) and 6 cotypes, males 5 cotypes (C. T. Brues); 3 cotypes of the male (Mrs. C. T. Brues); November and December, 1911.

This species is related to *H. coactus* Cresson by the similar-

ity of the tegulae of the male; the metathorax is rather similar in the two species and the constriction of the abdomen so pronounced in Cresson's species is present in the male and indicated in the female of the present species. *H. jamaicae* differs from the older species in the finer and more scattered punctures of the mesonotum and in the dark brown, not honey colored, stigma and nervures.

In the present connection the relationship of *H. coactus* to the species of the *tegularis* group might be discussed. This relationship was suggested by the form and sculpture of the tegulae of *H. coactus* and *H. tegularis* Robertson; in both species the tegulae are longer than the average for the genus and distinctly pointed behind, the point turning mesially. In *H. tegularis* the entire surface of the tegulae is coarsely and closely punctured, while in *H. coactus* a large central space is bare and shiny; behind the punctures are like those of *H. tegularis,* but in front they are a little finer. The second and sometimes the third abdominal segment in *H. tegularis, H. pseudotegularis* Cockerell, and *H. tegulariformis* Crawford, show the inflation on either side just above the apical margins as in *H. jamaicae,* but to a less degree. The mesonotum in all five species mentioned is sharply lineolate; and the knees and tarsi in all five are somewhat paler than the rest of the legs. In the light of the relation of *H. coactus* to *H. jamaicae* the *tegularis* group is brought nearer to the rest of the genus.

Halictus deceptor sp. nov.

♀ Length 5 mm. Head and thorax blue-green, not brassy, abdomen black.

Face closely punctured, a little longer than broad, clypeus produced two-thirds of its length beyond the eyes.

Mesonotum shiny, with very fine punctures, well scattered in the middle, but quite crowded on either side of the parapsidal groove. Truncation of the metathorax rather broad, unsculptured and with shiny rounded edges; the basal area with no indication of a rim, and with but few, very short, weak and simple plicae reaching one-third of the distance to the margin; its surface shiny, although somewhat lineolate. Tegulae dark brown, shiny.

Wings dusky brown, the stigma and nervures very dark brown.

Legs blackish, shading into dark brown on the tarsi.

Abdomen shiny black, the disc of the first segment impunctate, the rest with very fine scattered punctures.

Pubescence very scant, a few fine whitish hairs on the sides of the third to fifth abdominal segments, on the lateral areas of the face, the cheeks and the pleurae, hair of tarsi yellowish.

Habitat.—Quirigua, Guatemala. 1 (type) and 1 cotype, February and March, 1912 (W. P. Cockerell, at flowers of 21).

This species was at first confused with *H. exiguus* Smith, which it closely resembles in size and character of the metathorax; and from which the produced clypeus, dark tegulae and legs and a closely punctured area on either side of the parapsidal grooves separates it. If it is considered as closely related to *H. exiguus,* it must go into the group with *H. zephyrus,* but all the members of this group have the clypeus short and the punctures of the mesonotum scattered. It is probable that this species really belongs in the group with *H. hortensis* Lovell and *H. jamaicae,* both of which have a very similar pattern of punctures on the mesonotum; while *H. sparsus* Robertson, and *H. tenuis* Ellis, of the same group, have a produced clypeus; the loss of a few plicae would make the metathorax of *H. hortensis* resemble that of *H. deceptor.*

Halictus perparvus sp. nov.

♀ Length 3 mm. Head and thorax dark blue green, mesonotum olive green, with brassy tints.

Head round; clypeus produced; face finely and closely punctured, and sharply lineolate, except on the clypeus and supraclypeal area; front a little inflated just above and to either side of the short median carina.

Mesonotum finely lineolate, finely and quite closely punctured, the punctures a little coarser and somewhat crowded along the posterior half of the deep median groove and on either side of the parapsidal grooves. Scutellum finely and closely punctured. Basal area of the metathorax lineolate, the surface of the numerous, weak, indistinct plicae finely granular, the middle plica stronger and reaching the truncation; the narrow rounded margin slightly elevated on either side of the middle but not forming a rim; plicae continued on to the sides of the segments laterally. Tegulae dark brown, shiny, but with very fine rather close punctures.

Wings somewhat dusky, stigma and nervures grayish testaceous; second submarginal cell much smaller than the third.

Legs dark brown.

Abdomen dark aeneous-brown, all the segments except the fifth distinctly inflated on either side just above the broad apical margin; margin of the segments lineolate but not punctured or different in color from the rest of the segments. Discs of all except the first segment with very fine punctures. Last three segments very scantily pubescent along the apical margin.

Pubescence very scant, distinctly buffy on the legs.

Habitat.—Phoenix, Arizona (Kunzé), 1 (type), a second specimen, similarly labeled but badly broken.

This species is probably related to *H. tegularis* Robertson and the other small species with more closely punctured tegulae, from which the finer more scattered punctures of the tegulae, the dusky wings, and the smaller size distinguish it. The inflation on the sides of the abdomen relates it to *H. coactus* Cresson, and *H. jamaicae* Ellis. *H. perparvus* is the species recorded from Arizona as *H. pseudotegularis* by Cockerell in Canadian Entomologist, 1898, p. 237.

Halictus crassiceps sp. nov.

♀ Length 6 to 7.5 mm. Head and thorax dark greenish-blue, abdomen very dark brown to black.

Head variable in actual size, usually as broad as the thorax, sometimes broader in large specimens; facial quadrangle almost square, a little shiny, finely and closely punctured above the antennae, the punctures more scattered over the lateral areas of the face, median carina very short, supraclypeal area narrow and well elevated; clypeus very short, not at all produced. Cheeks full, shiny, finely punctured, and openly lineolate.

Thorax finely roughened on the sides; metapleurae with fine regular plicae over the upper half; mesonotum very smooth and shiny, usually without lineolations, very finely and very sparsely punctured; median and parapsidal grooves distinct but not deep. Truncation of the metathorax with distinct lineolations and coarse scattered punctures; a small, impunctate, triangular area at the middle of the upper margin; basal area broad and concave, without a salient rim except near the middle; the surface lineolate, and with relatively few, fine, sharp, simple or branched rugae, well separated from each other and usually reaching the edge, the middle one stronger and simpler. Tegulae testaceous, impunctate and shiny.

Wings hyaline, a little milky, stigma and nervures pale honey color, costal nervure darker.

Legs black, tarsi dark testaceous.

Abdomen shiny, all of the segments margined with testaceous, segments 1 and 2 almost impunctate, segments 3 to 5, and sides of segment 2 covered with thin, closely appressed, grayish white hair.

Pubescence rather scant, whitish on the sides of the thorax and under sides of the abdomen, faintly grayish on the lateral areas of the face, cheeks and legs, darker on the post scutellum.

Habitat.—Mesilla Park, New Mexico, 1 (type) at flowers of *Sophia ochroleuca* Wooton, March 18 (Cockerell No. 5661); Paraje, New Mexico, 1 at flowers of plum, April 11 (Ckll.); Las Cruces, New Mexico, 2 at flowers of plum, March 23 and 25 (Ckll.); Mesilla Park, April 12, 1 at *Sophia* (Ckll. 2686f); Albuquerque, New Mexico, August 16, 1 at flowers of *Aster spinosus* Bentham (Ckll. 4548); Bernalillo, New Mexico, July 1-2, 1 (Ckll. No. 3269).

Three specimens differ from the type lot by having the mesonotum faintly but distinctly lineolate. Habitat, Colorado Springs, Colorado, 2 on willow, April 20 (W. P. Cockerell); Boulder, Colorado, 1 on Virginia creeper, July 17, 1908 (W. P. Cockerell).

This species is probably related to *H. zephyrus* Smith, from which it is distinguished by the wholly nonmetallic abdomen, the blue, not brassy head and thorax, and the longer plicae on the basal area of the metathorax. The punctures of the mesonotum are not crowded around the parapsidal grooves in *H. crassiceps* as in *H. zephyrus*. The perfectly hyaline wings, the pale tegulae and the lineolate cheeks as well as the nonmetallic abdomen separates it from *H. umbripennis* Ellis.

(To be continued.)

Bibliography of Diptera.

I am keeping a card index of the literature of North American Diptera. The number of references has approximately doubled since the publication of my catalogue in 1905, and new matter is now being published in greater volume than ever, especially on the biological phases of the subject. I have a good deal of trouble in finding all the articles, as I am not situated where I have access to an extensive scientific library. It becomes necessary therefore to request and urge that workers in Diptera furnish me with separates of their articles, whether taxonomic or otherwise. In return I will furnish my own separates as far as possible, or will look up bibliography; as far as my time allows will determine species.—J. M. ALDRICH, 238 S. Grant St., La Fayette, Ind.

Notes on Habitats of Grasshoppers at Douglas Lake, Michigan (Orth.)

By Arthur G. Vestal, University of Colorado.

A list of the *Orthoptera* at the summer biological station of the University of Michigan has been published,[1] but no records of dates or habitats have been included. During the summer of 1912 the writer collected *Acridiidae* at Douglas Lake, in Cheboygan County, seventeen miles south of the tip of the southern peninsula. In addition to records and habitat notes obtained, six species were taken which had not been listed from the region. The *Tettiginae* collected were few, and the notes below refer only to members of our other three subfamilies.

Douglas Lake is irregular in contour, and about four miles long. The beach is narrow, in many places wanting. More than half the area adjoining the lake is sandy burnt-over pine lands, now occupied by open woodland of large-toothed aspen, with undergrowth of bracken fern and blueberry. Clay morainic lands are partly under cultivation, but mostly occupied by hardwood forest of beach, maple and hemlock, or by hardwood clearing. There are also grassland areas, meadows and sedge growths, cedar bogs, and open peat bogs.

Subfamily Tryxalinae.

Chloealtis conspersa (Harris). July 25, 1912, in small opening in hardwood forest, on shrubbery; July 25, open hardwood forest, on sandy loam surface; July 30, hardwood clearing; Aug. 11, aspen forest, shaded lichen-covered surface. The species is typical of thickets, open forest situations, clearings and forest borders, depending upon wood, as is well known, for egg-laying sites. It is not found in numbers. Not formerly known in the region.

Stenobothrus curtipennis (Harris). July 30, on willow shrubs in moist swale of sand-bar; Aug. 9, moist weed-patch near tile drain in cultivated field; Aug. 11, beach-grass dunes. (This locality, on the lake shore, is unusual for the species. Occasional specimens were washed ashore and picked up alive on the beach. The single beach-grass specimen may have come from the lake); Aug. 11, grassy border

[1] Woodward, Alvalyn E. The *Orthoptera* collected at Douglas Lake, Michigan, in 1910. Mich. Acad. Sci., vol. 13, pp. 146-167. 1911.

between sedge bog and forest; Aug. 12, abundant in meadow-marsh adjoining brook, in tall sedges and grasses; Aug. 12, wet meadow, abundant in blue-grass, white clover, sedges; August 12, in aspen forest. Typically found in humid grassland, and usually on the plants, not on the ground.

Subfamily OEDIPODINAE.

Arphia pseudonietana (Thomas). July 27, hay field, dry and sandy; Aug. 11, open sandy area near beach; Aug. 11, open parts of aspen forest, mostly on sandy road; Aug. 12, numerous along road through aspens; Aug. 14, very abundant in extensive dry blue-grass growth. A species of many and varied habitats, more abundant in open, dry, sparsely vegetated areas. Not recorded from the northern peninsula. More frequently seen on bare soil surfaces.

Camnula pellucida (Scudder). July 8, dry bluegrass in open aspen forest; July 12, open aspen forest; July 20, sparse grassy growth near beach, numerous; July 25, open hardwoods, on sandy loam, abundant; July 25, deeply shaded hardwoods, very few, in adjoining clearing much more numerous; July 30, moist swale, one specimen; July 30, open sand-bar; Aug. 1, dry pasture, very abundant; Aug. 9, dry pasture, abundant; Aug. 9, stubble-field; Aug. 11, open aspen growth, more abundant in sandy roadways; Aug. 11, beach-grass dunes, numerous; Aug. 12, open parts of aspen woodland; Aug. 14, dry bluegrass, very abundant. Abundant in dry, unforested habitats. The second species of the region in abundance.

Hippiscus tuberculatus (Palisot de Beauvois). June 28, bare and sparsely vegetated sand near beach; July 3, open areas and bare sand in aspen forest, and in sandy roadways; July 8, dry bluegrass in open aspen forest; July 10, clay roadways through hardwood forest and farming district. Not hitherto listed from the region.

Dissosteira carolina (Linnaeus). July 20, roadway in aspens; July 25, open hardwoods; July 27, hayfield, dry and sandy, nymphs; July 30, hardwood clearing; July 30, bare sand-bar; July 30, grassy swale; Aug. 1, dry pasture, numerous; Aug. 9, dry stubble-field; Aug. 10, nearly bare sand near beach; Aug. 11, open aspen growth. In this region, as in others, the species appears to be more abundant in cultivated or waste fields than in native habitats.

Spharagemon bolli Scudder. July 12, sparsely vegetated sand near beach; July 22, sandy roadways through aspens; July 24, open parts of aspen forest; July 25, open hardwoods, sandy loam slope; July 25, deep hardwoods, in shade, one specimen; July 30, hardwood clearing, very numerous; Aug. 11, open aspen growth; Aug. 11, sandy road through aspens; Aug. 12, roadway through aspens. Usually associated with sandy loam in forested regions. Not recorded from the northern peninsula.

Scirtetica marmorata (Harris). July 22, aspen forest, in undergrowth of bracken and blueberry, rather numerous; July 24, rather open area, aspen forest, on lichen surface, several specimens; Aug. 10, open grassy situation, one specimen; Aug. 12, lichen surface in aspen forest, numerous locally. In the region the species appears to be associated with lichen surfaces in rather open situations, somewhat after the manner of *Trimerotropis saxatilis* McNeill. The markings of *Scirtetica* give it much the general appearance of the lichens on which it rests.

Circotettix verruculatus (Kirby). July 7, open aspen growth; July 10, dusty road in hardwood district; July 25, deep hardwoods, in shade, one specimen; July 30, hardwood clearing; Aug. 9, sandy roadway; Aug. 11, open aspens; Aug. 12, dry bluegrass, sandy loam soil; Aug. 12, roadway through aspens, numerous; Aug. 14, roadways through dry bluegrass.

Subfamily ACRIDIINAE.

Podisma glacialis variegata Scudder. No specimens of this wingless grasshopper were taken by the writer. The only record, kindly furnished by Miss Alvalyn E. Woodward, reads, "Two specimens, one male, one female, collected August 20, 1910, Carp Creek, state road, by A. S. Pearse." These specimens were determined by Mr. A. N. Caudell as *Podisma variegata* Scudder. The writer has examined one of them. Carp Creek is in a deep forested ravine.

Melanoplus islandicus Blatchley. July 25, beech-maple-hemlock forest, dense shade, thick leaf-mulch, adults and nymphs; July 26, deep hardwood forest; July 30, deep hardwood forest; August 12, cedar bog, dense shade, moist *Sphagnum* surface. All the specimens come from deep, moist forest. The species is recorded from Ontario; La Salle Island, in Lake Huron; and from the northern peninsula, but not hitherto from the southern peninsula.

Melanoplus fasciatus (Barnston-Walker). July 20, advanced stage of aspen forest, under the taller trees, aspen, birch, maple; July 22, in shady moss-grown parts of aspen forest; July 24, aspens, common in shaded places; August 11, aspen growth; August 11, open bluegrass in sand, adjoining aspen forest; August 11, shaded part of aspen growth; August 12, aspens, shaded lichen surface. These records are all for the short-winged form, *M. f. curtus*. One male of the long-winged form, *M. f. volaticus*, was taken August 12, in sandy loam, adjoining a grove of hardwoods. The species had not been listed from the region.

Melanoplus atlanis (Riley). July 8, 20, 22, 23, 25, 30; August 1, 9, 11, 12, 14. Open parts of aspen forest, particularly in dry bluegrass along roadways; hardwood clearings, very abundant; black-

berry-maple thickets in hardwood cuttings; open hardwood forest; deep hardwood forest, rare; nearly bare sand-bar; dry bluegrass in sandy loam, very numerous; dry pastures, very abundant; stubble-fields; tall meadow-grass near brook; wet bluegrass-white clover meadow. This is the most abundant and most generally distributed species in the region.

Melanoplus femur-rubrum (De Geer). No specimens were taken by the writer. Miss Alvalyn E. Woodward has furnished the following information: *"Melanoplus femur-rubrum* was first collected August 8. From that time on it was found in nearly all collections from dry meadows." The species usually selects moister and less sandy habitats than those in which *M. atlanis* is most abundant.

Melanoplus angustipennis (Dodge). July 1, open aspen growth, near beach; July 6, aspens near bench; July 20, open sandy parts of aspen growth, among plants of bracken and blueberry, numerous; July 22, bracken-blueberry growth in aspens; August 11, open aspen forest; August 11, beach-grass dunes; August 11, bluegrass in aspen forest; August 11, in aspens, bracken-blueberry growth; August 12, aspen forest, open parts; August 14, dry bluegrass growth, few. In more sandy ground than *M. atlanis* selects. Not listed from any of the other localities in Michigan, nor has it been recorded from the region studied. .Known from Ontario, however.

Melanoplus minor (Scudder). July 30, in hardwood clearing, one male. The only record for the Douglas Lake region. Not recorded from the northern peninsula.

Melanoplus luridus (Dodge). July 6, aspen forest, open parts near beach; July 22, aspen forest; July 30, hardwood clearing; August 11, aspen forest, open growth. A species of dry grassland and dry open woodland. It is seldom taken in abundance.

Melanoplus differentialis (Thomas). Aug. 1, pasture, nymphs; August 9, dry stubble-field, nymphs; August 11, bluegrass in aspen forest, nymph; August 12, tall meadow-grass near brook, adults; August 12, wet bluegrass-white clover meadow, adults. Not abundant in the region, being near the northern limit of its range. Not recorded from the other Michigan localities.

Melanoplus bivittatus (Say). July 8, 11, 20, 25, 27, 30; August 9, 11, 12. On beach, sparse grasses; beach-grass dunes; dry blue-grass, sandy loam soil; dry stubble-field; aspens, in bluegrass; aspens, open situations; tall meadow-grass near brook; moist swale, few; hardwood clearings, abundant; deep hardwoods in shade, few. All belong to the red-legged form, which is known as *M. femoratus* (Burmeister) and *M. bivittatus femoratus* Scudder. Abundant and generally distributed within the region.

Insect records for the State of Michigan are few. The writer is acquainted with lists of *Orthoptera* from but four other localities in the State. These are the Saginaw Bay region;[2] the Keweenaw Bay region, Baraga County, northern peninsula,[3] the Porcupine Mountains region, Ontonagon County,[4] and Isle Royale.[5] The grasshopper faunas of northern and southern extremes of the State are quite different, the Douglas Lake fauna being intermediate in character. In general the habitats recorded for the species in other localities are very similar to those observed at Douglas Lake, often being identical.

Euptoieta claudia at Montreal (Lep.).

On September 23rd, 1913, I captured just outside the Canadian Pacific Railway locomotive shops here, a male specimen of *Euptoieta claudia* and on September 25th close to the same spot, a female specimen of the same species. The latter was, however, malformed, one of the lower wings being undeveloped. I note that in "The Butterfly Book," by W. J. Holland, the range of this species is given only as far north as the Middle New England States and that it is very rare there. It struck me that possibly these two specimens had been accidentally transported from the southern states in either the larval or pupal stages on freight cars, of which there are always a large number in the adjoining works, and that the imagines upon emerging had sought the nearest piece of waste land, which is covered with bushes and young birch and maple trees.

The female was apparently ovipositing when I caught her, though I had no time to search for the ova. Hence it is just possible, if the ova can withstand the Canadian winter, that larvae may be found next year in the same locality.—H. M. SIMMS, 192 Ontario, East, Montreal, Canada.

[*E. claudia* has been reported from Canada, including Winnipeg, Man. —H. S.]

[2] Shull, A. Franklin. *Thysanoptera* and *Orthoptera*. In Ruthven, A. G., a biological survey of the sand dune region on the south shore of Saginaw Bay, Michigan. Mich. Geol. and Biol. Surv., Publ. 4, Biol. Ser. 2, pp. 217-231. 1911.

[3] Rehn, J. A. G. Notes on the Orthoptera of the Keweenaw Bay region of Baraga county, Michigan. (Collections by Morgan Hebard). Ent. News, vol. 15, pp. 229-236, 263-270. 1904.

[4] Morse, A. P. The ecological relations of the *Orthoptera* in the Porcupine Mountains, Michigan. (Collections by A. G. Ruthven.) In Adams, C. C., An ecological survey in northern Michigan. Rept. State Board of Geol. Surv., pp. 68-72. Lansing, 1906.

[5] Morse, A. P. Report on the Isle Royale *Orthoptera* of the 1905 expedition. (Collections by H. A. Gleason and C. C. Adams.) In Adams, C. C., An Ecological survey of Isle Royale, Lake Superior. Published by the Geol. Surv., pp. 299-303. Lansing, 1908.

In connection with the above paper see also:

Gleason, H. A. The ecological relations of the invertebrata fauna of Isle Royale, Michigan. In Adams, C. C., loc. cit., pp. 57-78. 1908.

A New Coccid from Arizona (Hemip.).

By T. D. A. Cockerell, University of Colorado, Boulder, Col.

Recently Mr. O. C. Bartlett sent me some specimens of a large Coccid collected by Dr. A. W. Morrill in the Verde Valley, near Jerome, Arizona. The small piece of the food plant sent is superficially just like *Viborquia spinosa* (Engelm.) Ckll., but certainly different, as the leaflets are strongly inequilateral and do not possess dark gland-dots beneath. The Coccid is a very distinct new species of *Monophlebinae*.

Palaeococcus morrilli n. sp.

Females solitary on small branches; about 7 mm. long. 5 broad, 4.5 high; globose, tapering posteriorly into a tail, so that the whole shape is pyriform; dark plumbeous, coated with white mealy secretion, which does not wholly hide the dark surface; down the middle of the abdomen and at the extreme sides are more or less distinct tufts of secretion. The structure of the antennae, legs, etc., is as usual in the genus; antennae ten-jointed, the joints measuring as follows in microns: (1) a ring, not readily measured, (2) 140, (3) 115, (4) 75, (5) 57, (6) 90, (7) 100, (8) 100, (9) 100, (10) 190.

Larva bright red, with black legs and antennae. Antennae 6-jointed, the joints measuring in microns: (1) 55, (2) 72, (3) 80, (4) 57, (5) 57, (6) 170. On the last joint are long hairs, the longest about 400 microns. At the caudal end of the abdomen are two hairs about 480 microns long, then on each side of these a pair about 1,000 microns long, and anterior to these, along the margin, four curled hairs about 480 microns long.

The species is readily known by its large size and produced tapering abdomen, as well as the 10-jointed antennae. The adult antennae are very much larger than in *P. hempeli* or *P. rosae*. Compared with *P. townsendi*, the antennae are much more slender, with the subapical joints proportionately longer, and the third and fourth joints not nearly so robust. The larva also has more slender antennae than that of *townsendi*.

Dr. Skinner in Cuba.

Dr. Henry Skinner, Editor Emeritus of the News, and Mrs. Skinner have been spending the month of February in Cuba, collecting insects, most of the time as guests of Mr. and Mrs. C. P. Ramsden at Guantanamo, in the eastern part of the island. This is Dr. Skinner's first experience in the tropics.

Species Limits in the Genus Lucilia (Dipt.).

By Charles H. T. Townsend, Lima, Peru.

The paper by Mr. John D. Tothill on variation in North American *Lucilia* spp. (Ann. Ent. Soc. Am., vol. 6, pp. 241-256) is excellent so far as it goes. The number of specimens examined is pitifully small. Until work of this general nature, but on a much more extended scale, has been done and verified for any given group of muscoid species, we shall not know what are the species limits within that group. It is quite possible that the ten species of *Lucilia* in question are largely variations of previously described species, but the evidence presented is not conclusive in all the cases. The results deduced from the rearings of *L. sericata* carry a certain slight amount of weight; the others mean almost nothing.

The isolation of any form by means of a name and description becomes at once a challenge to all interested to test the form in question and determine its standing. Such work is perfectly legitimate, but it must be done with care and full attention to details in order to exclude possible sources of error. The capacity for exact results of the plan followed in the above paper is very questionable. An isolated egg-mass, not followed through its entire deposition, carries no positive assurance of all the eggs therein being the product of a single female fly. If left undisturbed, the female of *Lucilia* usually deposits at one sitting the entire matured product of both ovaries, which is to say one egg from each ovariole. But this takes considerable time and the flies may easily be disturbed from a variety of causes, resulting in a partial deposition by one female, which is added to by another. The writer has noted hundreds of thousands of eggs deposited by *Lucilia* females in continuous masses, often plastered over each other tier upon tier, which showed no line of separation between the products of different females. The only safe plan to pursue in this work is to rear adults from puparia, mate like individuals, isolate the gravid females and furnish them proper food materials for oviposition, rear the progeny, mate these again similarly, rear their progeny, etc. Every specimen in the en-

tire series of all the generations must be examined and all of its external characters tabulated. Thousands and not hundreds of specimens need to be dealt with.

There is no doubt that much variation prevails in the chaetotaxy of certain groups, and the limits of this variation need to be determined. It needs to be determined also to what extent macrochaetal variations are inheritabie. Clean strains must be used for this work. Gravid females taken in the open will not suffice, still less will egg masses found in the open. The writer has not the time at present to verify the results presented in the above paper, but he notes a few glaring discrepancies which need immediate correction.

1. *Lucilia morrilli* T. is said to be, type and cotypes throughout, *Pseudopyrellia cornicina*. It is manifestly quite impossible that the latter species should have been determined by the writer as *Lucilia*. If page 50, Tax. Musc. Flies, is turned to, it will be seen that *Ps. cornicina* is there recorded as without hypopleural hairs and with fourth vein arcuate at bend. *Lucilia* shows opposed characters. The conclusion is inevitable that the specimens of *Ps. cornicina* in question are not the specimens on which *L. morrilli* was founded.

2. *Lucilia giraulti T.* It can be positively affirmed that the actual type, at time of characterization, possessed two pairs of ocellar bristles, these being of practically equal strength. This is indicated in the table of species, as well as in the description.

3. *Lucilia infuscata* T. It is likewise impossible that a specimen of *Phormia regina* should have been included in the original series as a cotype. *P. regina* is defined on the same page.

The writer has made it an invariable rule, at the cost of much labor, to verify repeatedly his examinations of material in making determinations and descriptions, so that no error may result. It is by reason of this fact that he is able to make the above definite assertions.

As to *Lucilia terraenovae* Desv., it is the type of the genus *Protophormia* T.

The above paper is followed in the same journal by a very

carefully pursued study of chaetotactic variation in *Lucilia* and *Calliphora*, especially the former, carried out by Mr. Phineas W. Whiting (Ann. Ent. Soc. Am., vol. 6, pp. 257-267). The author states that he secured female flies and caused them to oviposit, rearing the progeny for study, but points out that the issue of each female probably represents a mixed issue from the paternal side, since copulation is frequent. Rearing the flies from collected puparia and mating like individuals, or unlike individuals, in each case tabulating both parental sets of characters, will eliminate from the investigation this as well as other conditions that might prove a source of inexactness.

Mr. Whiting's results are not only extremely interesting but highly suggestive. The data which he presents are extensive enough to carry much weight. He is undoubtedly right in attaching much importance to habitus in specific determination, involving general coloration and slight differences in form including frontal width, by which criteria it seems certain that more than four recognizable species of *Lucilia* exist in North America. The series bred by Mr. Whiting from abnormal females is especially instructive. Such work can not fail to yield results of great value in determining species limits. It is to be hoped that Mr. Whiting will pursue this work farther.

Notes on North American Tineina, with descriptions of new species (Lepid.).

By ANNETTE F. BRAUN, Cincinnati, Ohio.

Argyresthia media n. sp.

Palpi, face and front part of the tuft on the head pale golden, tuft white behind; antennae pale golden with brown annulations.

Thorax white, patagia golden. Fore wings silvery white, costal edge suffused with pale golden. The markings which are dark bronzy brown are distributed as follows: A rather broad fascia from the middle of the dorsum reaches almost to the costal edge, widening just below it, and sending a narrow spur obliquely outward where it joins with the eleventh or twelfth of the narrow brown streaks which mark the costal edge of the wing. Apical third of the wing entirely overlaid with dark bronzy brown scales, except for two white costal spots and three smaller dorsal spots. The proximal side of the dark apex

projects inward, forming an acute angle at the middle of the wing. Hind wings pale fuscous with golden tinged cilia. Veins 7 and 8 of the fore wings are separate.

Legs silvery white, outwardly fuscous and with the tips of the tarsal joints dark brown.

Expanse: 9 mm.

One specimen, Cincinnati, Ohio, May 28, 1910, captured in a clump of willow trees, on the trunk of one of which it was resting. I have kept this specimen for a number of years, hoping to discover its food plant, or at least collect additional specimens, but without success.

The species is most closely related to *A. inscriptella* Busck, which has, however, a darker costal edge, and a greater portion of the apical half of the wing dark.

Type in my collection.

Acrolepia incertella Chambers.

Heribeia incertella Chambers, Can. Ent., IV, 44, 1872; Dyar, List N. A. Lep., No. 6471, 1902.

Syn. *dorsimaculella,* Chambers, Can. Ent., V, 13, 174, 1873; Walsingham, Trans. Am. Ent. Soc., X, 172, 1882.

Contrary to the usual habits of the larvae in this genus, which, according to Meyrick (Handbook of British Lepidoptera) mine blotches in leaves, the larvae of *A. incertella* Cham. feed within folded leaves. In May, at the time the new shoots are developing, the young leaves toward the ends of the shoots of *Smilax hispida* Muhl. are folded edge to edge with the upper surface inside and are closely spun together along the margins. The larva feeds within leaving the lower epidermis of the leaf intact. At the time of pupation, the larva deserts the leaf and spins upon a leaf or twiner, an open network cocoon of yellowish or brownish silk, within which the chrysalis is placed upright with anal end attached.

Elachista praematurella Clemens.

Elachista praematurella Clemens, Proc. Acad. Nat. Sci., Phila., 172, 1860; Tin. No. Am., 133, 1872; Chambers, Can. Ent., VI, 76, 1874; Bull. Geol. Surv. Terr., III, 143, 1877; Busck, Proc. Ent. Soc., Wash., V, 203, 1903; Dyar, List N. A. Lep., No. 6088, 1902.

I have bred a specimen of this species from a mine on nodding wild rye, *Elymus canadensis* L. At first the mine is a mere thread-like line, but gradually increases in breadth until it comes to occupy almost the entire breadth of the leaf. The length of the mine is about 10 or 11 cm. The pupa is attached to a leaf beneath a few criss-cross threads of silk, not sufficient to be termed a cocoon.

There are several generations a year and specimens appearing in the middle and the latter part of summer are duller and have the white markings less distinct and less clearly limited, due to the encroachment of the grayish scales upon them.

I have not been able to verify Chambers' surmise that the larva of this species mines the blades of "blue grass," although I have often captured specimens on lawns and in pastures almost exclusively of blue grass; other species of grass, among them the food plant recorded here, are, however, always present.

Leucanthiza dircella n. sp.

Head golden, with dark brown hairs behind. Antennae dark brown with the tips silvery white.

Thorax golden, dark brown in front. Fore wings orange-yellow, with the apical portion dark brown, and a dark brown patch occupying the basal part of the wing *on the costa and at the base,* but *not reaching the dorsal margin.* This patch is bordered behind by an *almost straight golden fascia extending from costa to dorsum which thus encloses on the dorsal margin, a small patch of the orange-yellow ground color.* Basal angle sometimes with a few golden scales. An oblique somewhat curved golden streak, dark margined on both sides extends from the basal third of the wing near the costa to the middle of the costa. At the beginning of the cilia is a small golden costal streak. *Near the middle of the dorsum, is a short golden streak, margined toward the base by an oblique line of dark brown scales. At the tornus is an inwardly oblique and longer golden streak.* There is a streak of golden scales just within the margin along the termen, not very distinct in some lights. Cilia dark brown. Hind wings and cilia dark brown.

Abdomen dark brown above. Legs golden, tarsi dark brown.

Expanse: 5-6 mm.

Four specimens bred from large white blotch mines on the upper side of leaves of moosewood, *Dirca palustris* L., Cler-

mont County, Ohio. The mine resembles that of *L. amphicarpeifoliella* Clem. very closely and contains from one to eight larvae. It may occupy almost the entire surface of the leaf, with finger-like projections made by the individual larvae. The cocoon, as in the other species of the genus, is spun outside the mine. Mines of the first generation may be collected toward the end of June, those of the second generation in September. Although the mines are common where the food plant occurs, the species is a difficult one to rear, as a large proportion of the larvae are parasitized.

Imagoes, July 8th to 29th.

The differences between this species and *L. amphicarpeifoliella* Clem., though slight, are constant. These differences are italicized in the description.

Type and paratypes in my collection.

Acrocercops strigosa n. sp.

Head brownish with whitish scales intermixed. Palpi fuscous. The labial palpi have the base of the terminal joint and a ring near the base whitish. Antennae fuscous.

Fore wings pale brownish with a sprinkling of fuscous scales, which are occasionally gathered into spots on the margins and near the tip of the wing. A series of seven oblique almost parallel and equally distant narrow white lines cross the wing from costa to dorsum, reaching the dorsum farther from the base. The first of these is placed at the basal fifth on the costa; the third forks below the fold; the fourth and fifth are a little interrupted in the middle; the seventh is concave outwardly. There is a short white streak at the extreme apex, and a similar one beyond it crossing the cilia. Cilia gray. Hind wings and cilia brownish gray.

Legs whitish gray, with broad black annulations. Abdomen gray.

Expanse: 10 mm. (male).

Powell County, Kentucky; one specimen bred on *Quercus prinus* L. The early mine is a narrow white gallery, which suddenly expands into a very large whitish blotch. The larva feeds here and there, finally consuming the entire parenchyma. A dense brownish cocoon, ornamented with several whitish globules, is spun in a fold in a leaf. Mine collected May 23rd; imago, June 25th.

Type in my collection.

Parectopa pennsylvaniella Engel.

Gracilaria pennsylvaniella Engel, Ent. News, XVIII, 278, 1907.

I have bred this species from large inflated mines on leaves of *Aster cordifolius* L., similar to the mines of *P. plantaginella* Cham. on *Erigeron.* At first the parenchyma is not eaten in the loosened area and the mine is indistinct; later most of the parenchyma is consumed and the mine becomes yellow. Cocoon in a fold of the leaf. Mines collected July 17th yielded imagoes July 30th.

Recent Collections of Spiders in Newfoundland and Labrador (Aran.).

By J. H. EMERTON, Boston, Mass.

In the last two seasons several small collections of spiders from Newfoundland and Labrador have come into the writer's hands, which considerably extend the published range of several species. The Newfoundland spiders are nearly all familiar species of northern New England, but they include *Lycosa quinaria,* previously found in the Rocky Mountains and once in a bog in Maine. The spiders from the Natashquan River region in southern Labrador are also familiar New England species. The Labrador spiders from Battle Harbor and northward include two species of very wide distribution, *Epeira patagiata* and *Erigone longipalpis,* but all the others are well known residents of mountain tops in New England and in the Rocky Mountains. Messrs. Leng and Engelhart, two New York entomologists, while at Battle Harbor sifted the scanty leaf mold under the dwarf birch trees and found *Ceratinella brunnea,* a common northern New England species and *Tmeticus montanus, Tmeticus bidentatus* and *Bathyphantes alpina,* all common under moss and leaves in the upper forests of the White Mountains. In Miss Esterbrook's collection from the northern part of the Labrador coast occurs for the first time *Lycosa pictilis,* a species before only known from the top of Mt. Washington. The accompanying table gives a list of the species found with their localities and range. Besides the species mentioned are two unidentified Linyphiadae from Newfoundland.

DISTRIBUTION	LENG & ENGELHART Spruce Brook and Stephenville Crossing Newfoundland	C. W. TOWNSEND Natashquan River Labrador	LENG & ENGELHART Battle Harbor Labrador	A. C. BENT Hopedale, Labrador	MISS E. M. ESTERBROOK Hopedale and Northward Labrador
Sulphur Mt., Banff, 7,000 feet					
Mt. Washington, 5,000 feet			Lycosa albohastata	Lycosa albohastata	Lycosa albohastata
Katahdin, 3,000 feet					Lycosa pictilis
Green Mts., White Mts., Labrador				Pardosa muscicola	Pardosa muscicola
Green Mts., White Mts., Katahdin, Mt. Desert		Pardosa uncata		Pardosa uncata	
Rocky Mts., Green Mts., White Mts., Labrador				Gnaphosa brumalis	
Rocky Mts., White Mts., Portland, Me., Greenland	Pardosa greenlandica				
Rocky Mts., White Mts., N. E. to Greenland	Pardosa glacialis		Pardosa glacialis	Pardosa glacialis	Pardosa glacialis
Rocky Mts., bog at Orono, Me., Newfoundland	Lycosa quinaria				
Rocky Mts., New England to Greenland	Pardosa tachypoda	Pardosa tachypoda			
New Hampshire and Maine up to 4,500 feet	Clubiona canadensis	Clubiona canadensis	Clubiona canadensis		
			Tmeticus montanus		
			Tmeticus bidentatus		
			Bathyphantes alpina		
New England up to 4,000 feet			Ceratinella brunnea		
	Coelotes montanus				
	Cryphoeca montana				
	Amaurobius borealis				
United States and Canada	Lycosa pratensis	Lycosa pratensis	Lycosa pratensis		
	Coelotes medicinalis				
	Dolomedes sexpunctatus				
	Agelena naevia				
	Amaurobius sylvestris				
	Ceratinella laetabilis				
	Enoplognatha marmoratus				
North America and Europe	Linyphia marginata				
	Meta menardi				
	Cyclosa conica				
	Epeira patagiata				Epeira patagiata
				Erigone longipalpis	

The Bethylid Genus Mesitius in South America (Hym.).

By CHARLES T. BRUES, Bussey Institution, Harvard University.

The members of the remarkable genus *Mesitius* Spinola[1] are some of the largest and perhaps the most strikingly ornamented species of the varied family Bethylidae. A considerable number of species have been described from the Old World, several of which have been most beautifully figured by Westwood.[2] So far, however, the genus has not been recorded from the Western Hemisphere, although Ashmead[3] referred to it a number of North American insects which have since been shown by Kieffer[4] to fall into quite a different genus, *Epyris*.

The South American specimen upon which the present note is based was collected at Bartica, British Guiana, by H. S. Parish, and given me by Prof. A. L. Melander. It represents a new species which may be described as follows:

Mesitius neotropicus sp. nov.

♂ Length 9.5 mm. Metallic green, blue and purple, scutellum ferruginous; head thorax and abdomen spotted with yellowish white; wings infuscated at base and apex.

Head two and one-fourth times as wide as thick, rather coarsely, irregularly confluently punctate above and on the face, more sparsely so behind, especially on the cheeks; occiput and temples margined; ocelli in a small triangle, thrice as far from the eye margin as from one another; eyes large, oval, much narrowed below, bare; malar space very short, not furrowed. Antennæ 13-jointed; scape as long as the pedicel and first flagellar joint together, the latter twice as long as the pedicel and four times as long as thick; joints from thence onward shortening to less than twice their own width just before the apex. Ocelli large, on a tubercle in a very small triangle; the face below them with a median groove that extends to the base of the antennae. Head above greenish æneous, below æneous; front on each side below with a large triangular whitish spot which nearly meets the apex of the

[1]Mem. Acad. Sci. Torino (2), vol. 13, p. 73. (1851).
[2]Thesaur. Entom. Oxon., plate 31, figs. 8-11. (1874).
[3]Bull. U. S. Nat. Mus., No. 45, p. 62. (1893).
[4]Ann. Soc. Sci. Bruxelles, vol. 29 (2), p. 109. (1905).

spot from the opposite side; mandibles white, with black tips; palpi black, the maxillary 5-jointed with the joints increasing in length apically; labial 3-jointed.

Pronotum coarsely confluently punctate, with a deeply impressed transverse line which marks off sharply its anterior third; behind this with a deep median groove; æneous in color, with the central portion bright green, with a small median quadrate yellowish spot anteriorly, and on the posterior margin with a narrow band of the same color that widens laterally and extends over the lateral angles. Mesonotum much more sparsely punctate than the pronotum, with four parallel furrows, the lateral ones abbreviated anteriorly; distinctly purple, with the posterior third of the median lobe ferruginous; tegulæ bright metallic purple. Scutellum smooth, with a few small scattered punctures, ferruginous; postscutellum ferruginous, with a black, truncate posterior margin and a few large punctures on the disc. Metanotum black, coarsely, irregularly rugose, narrowed behind by converging lateral carinæ into a more or less shield-shaped form with subtruncate posterior margin; lateral angles strongly produced, white.

Abdomen minutely punctulate on the first two segments; closely punctate beyond; æneous anteriorly, but with green and bluish reflections beyond the second segment; basal half of first segment and anterior lateral corners, much enlarged below on the sides, of second, yellowish white; venter with second and first segment, except its posterior margin, whitish.

Propleuræ whitish except for a large black fovea above, confluently punctate; mesopleura confluently punctate, metallic green, metapleura below the spine with a few coarse, vertical rugæ.

Legs æneous, whitish at the incisures of the trochanters, and on the anterior tibiæ inwardly at tip.

Anterior wings infuscated at base over most of the submedian and half of the basal cell, and also beyond the beginning of the stigma, this spot growing much weaker toward the wing tip; basal and submedian cells completely enclosed by very strong nervures and radial cell nearly closed, although the radial vein suddenly becomes weak beyond its middle; transverse median nervure not broken; base of cubitus indicated by a hyaline streak; hind wing weakly infuscated on apical half.

One specimen, which is very probably a male, from Bartica, British Guiana, February, collected by Mr. H. S. Parish.

The Latest Honorary Fellow of the London Society.

Dr. A. P. Semenoff Tian-Shanski was elected an honorary fellow of the Entomological Society of London at its meeting of November 5, 1913, in the place of the late Prof. O. M. Reuter.

On the Blatta aegyptiaca of Drury (Orthoptera: Blattidae).

By JAMES A. G. REHN and MORGAN HEBARD, Philadelphia, Pa.

In 1773, Drury, in his classic *Illustrations of Exotic Insects* (II, p. 67, pl. XXXVI, fig. 3) figured and described a roach from Jamaica, which he judged to be the same as the *Blatta aegyptiaca* of Linnaeus. The latter species we know to be a member of the genus *Polyphaga*, and, while in a most superficial manner it resembles Drury's species, the two are quite different. Beauvois in 1805 (Ins. Rec. Afr. et Amer., p. 228, pl. Orth. IIc, fig. 4) figured and described from San Domingo the same species as Drury, calling it *Blatta laevigata*. Beauvois's name has had a somewhat checkered career, having been considered the correct one for one species of the genus *Phoetalia* by a number of authors and for a second member of the same genus by another, while more recently Kirby referred it with a query to the genus *Leucophaea*.

In 1839, Serville (Hist. Ins. Orth., p. 86) recognized that Drury's figure was of something quite different from the true *Blatta aegyptiaca*, and, having received specimens from Brazil which appeared to agree with Drury's illustration, he described the Brazilian material as *Blatta druryi* and referred Drury's figure to the same species. There is no difficulty in placing the species described by Serville, which is clearly the same as that called *Blatta limbata* by Thunberg in 1826 and *Nyctibora sericea* by Burmeister in 1838. The names *limbata* and *sericea*, however, apply to a species having much longer tegmina and a smaller and more ovate pronotum than Drury's form, these characters being evident in the figures of both Drury and Beauvois. Almost without exception recent authors have quoted the figure of Drury under *limbata* Thunberg, or rather under the synonymous *sericea* Burmeister.

Recently we have had occasion to determine two specimens, representing both sexes, of a species of the genus *Nyctibora*, both apparently accidental importations into the eastern United States, having been taken in situations where tropical fruits,

such as bananas, have been handled. One of these specimens was taken in a store at Manahawken, N. J., on September 1, 1913, by Mr. H. S. Harbeck, the other having been secured on a wharf in Philadelphia.* These specimens were found on comparison with material of *limbata* from Paraguay and northern Argentina to represent an allied but very distinct species, the characters of which were well shown by Drury and Beauvois. Knowing that the probable source of bananas received at Philadelphia was Jamaica, we examined an unworked collection of Jamaican Orthoptera which had been placed in our hands for study and were pleased to find a specimen of the same species included in it. This specimen is a female and was collected at Palm Beach, Montego Bay, Jamaica, on March 3, 1911. This individual proves the correctness of Drury's locality, which had, however, corroboration in a record by Walker under the name *druryi*. It is necessary to add the West Indies to the range of this genus and subfamily, something which most recent authors have not done, the general tendency being apparently to discredit Drury's locality. Aside from this, however, the senior author some years ago recorded *Nyctibora mexicana* from Jamaica.†

It is quite probable the accidental New England records of *N. sericea* given by Scudder‡ and Henshaw§ refer to this species instead of true *sericea* (= *limbata*), which latter, being South American, is less likely to be imported than a West Indian species.

We are now able to place this peculiarly West Indian species in its proper position as a valid species, the following references and differential characters enabling one to recognize it.

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*The latter specimen was recorded by Rehn (Entom. News, XIII, p. 309, Dec., 1902) as *Nyctibora sericea*. Individuals of true *sericea* were not available for comparison at that date.

† Trans. Amer. Entom. Soc., XXIX, p. 130.

‡ Proc. Davenp. Acad. Nat. Sci., VIII, p. 9 [Massachusetts]; Psyche IX, p. 100 [about Boston].

§ Psyche, IX, p. 119 [Springfield, Mass.].

Nyctibora laevigata (Beauvois).

1773. [*Blatta*] *aegyptiaca* Drury (not of Linnaeus), Ill. Nat. Hist. Exot. Ins., II, p. 67, pl. XXXVI, fig. 3 [Jamaica.]

1805. *Blatta laevigata* Beauvois, Ins. Rec. Afr. et Amer., p. 228, Orth. pl. IIc, fig. 4. [San Domingo.]

1868. *Nyctibora druryi* Walker (not *Blatta druryi* Serville), Catal. Spec. Blatt. Brit. Mus., p. 147. [Jamaica.]

1902. *Nyctibora sericea* Rehn (not of Burmeister), Entom. News, XIII, p. 309. [Accidental at Philadelphia.]

Compared with *N. limbata* the present species can be separated immediately by the shorter, more ovate form, much larger and nearly semicircular pronotum, which has the caudal margin nearly straight, by the shorter tegmina and wings, which but slightly or not at all surpass the apex of the abdomen, by the more robust limbs, the much less velutinous surface and the uniformly colored coxae and femora.

Measurements (in millimeters).

	N. limbata (Thunb.)		*N. laevigata* (Beauv.)		
	Male Misiones, Arg.	Male Puerto Bertoni, Paraguay.	Male Phila., Pa.	Female Manahawken, N. J.	Female Palm Beach, Jam.
Length of body	32.	27.	27.2	27.8	26.5
Length of pronotum	8.	7.9	9.	8.6	8.2
Greatest width of pronotum	12.	12.4	13.2	13.	12.2
Length of tegmen	31.2	32.	23.5	21.6	20.3
Greatest width of tegmen	12.5	11.8	10.7	10.	10.

Notes on Inadequate Locality Labels (Dipt.).

By CHARLES W. JOHNSON, Boston, Mass.

The more one collects and becomes familiar with the conditions governing the fauna of a given area and their relation to problems bearing on geographical distribution, the more one realizes the importance and value of having the exact date and the locality where a specimen was found. This is especially true of the rarer species, as many of the localities where one collected years ago are now entirely changed; woods have been cut and the clearings in many cases covered with buildings;

while meadows and swamps have been either drained or flooded and the original fauna thus wholly or partly destroyed.

In 1891 I commenced to specialize on the Diptera in connection with my work, on the collections representing the local fauna for the Museum of the Wagner Free Institute of Science of Philadelphia, of which I was then curator. As the labels used for the species found in Pennsylvania were only those of the counties adjacent to Philadelphia, and as much of the material has been scattered, it seems desirable to state for the benefit of future workers the exact localities where most of the collecting was done. My note book covering the period from May 30, 1891, to June 25, 1895, represents some fifty-four local collecting trips in the vicinity of Philadelphia.

"Phila." stands for all of Philadelphia County. One of the favorite collecting trips was to Fairmount Park, back of George's Hill, along a small brook called "George's Run," thence under the railroad bridge to an old pasture field (now entirely built over), thence to the woods in front of the Episcopal Home, to Belmont Avenue, then across the fields around Belmont Mansion and down the walks leading to the Columbia railroad bridge and from there home, via Strawberry Mansion. Another trip was to Chamonix, opposite the "Falls" and also home via Belmont and Columbia Bridge. This was before the electric line was built through the Park. Some collecting was also done along the Wissahickon.

I can only mention a few of the many interesting species captured in the twenty-seven collecting trips made to Fairmount Park. The types of *Leptogaster atridorsalis* (July 14), *Dolichopus reflectus* (May 30), *D. gracilis* (August 4), and *Chilosia prima* (September 4), were taken near George's Hill, and *Callicera johnsoni* near Strawberry Mansion, May 7. The latter was collected by Mr. C. T. Greene.

The label "Montg. Co." is an abbreviation for Montgomery County. The greater portion of the material marked thus was collected on eight different trips to a piece of woods about one mile east of Edgehill, near the old ore washer. These open woods were a favorite place for many of the rarer Syrphidae—

Xylota bicolor and *chalybea, Criorhina umbratilis* and *analis, Sphecomyia vittata, Teuchocnemis lituratus* and *Temnostoma pictula.* It is also the type locality of *Symphoromyia hirta* (June 2), *Neaspilota achilleae* (July 4), *Pipunculus atlanticus* (June 2), and *Tetragoneura pimpla* (June 16). One trip was made to Arcola on the Perkiomen River, April 27, 1894. *Pipiza albipilosa* was abundant there. Fairmount Park is the type locality for this species, and also for *Pipiza nigripilosa.*

In Bucks County, Neshaminy Falls and vicinity were the principal collecting grounds, but the amount of material collected was limited.

The label "Delaware Co." stands for several places covered by about eight collecting trips. The woods between Folsom and Morton yielded many new and interesting species. It is the type locality for *Asilus johnsoni* (July 7), *Atomosia sayi* (July 23), *Empis tridentata* (June 12) and *Haematopota rara* (June 12). My only specimens of *Criorhina notata* and of *Teuchocnemis bacuntius* were taken there May 8, while such species as *Odontomyia flavicornis* and *Trichopoda radiata* were taken frequently. Another favorite trip was up the valley from Darby to Collingdale and then through the woods to the home of my friend, Mr. Charles Voelker, at Clifton Heights. In the spring (May 5) an old log near Collingdale was usually frequented by *Chalcomyia aerea, Pseudotephritis corticalis* and *Leptis plumbea. Brachyopa vacua* was frequently found on the sap of injured trees or stumps. *Solva americana* and *Echthodopa formosa* were found in the woods at Clifton Heights. August 19, 1892, was spent with my friend, Mr. Charles S. Welles, at his home at Elwyn. Among the captures were two new species, *Leskia thecata* and *Plethochaeta versicolor.* At Media (June 21, 1895) I captured a specimen of *Microdon megalogaster.*

In Chester County, collections were made at Frazer, July 25, and Lenover, August 25, 1893. Later some collecting was done at Green Tree.

In this connection I should also like to refer to the locality label "North Mt., Pa." This applies to all species taken at

Lake Ganoga, August 29; Ricketts, August 30 and 31, September 1 and 2, and above Stull, September 3, 1897, also those collected at Ricketts June 7 to 9, 1898. The region is in the Canadian life zone, and yielded many new and interesting species.

There is another matter connected with labels that is often annoying and misleading. It is the abbreviation of the names of places and towns to suit one's fancy. We are not alone, however, in this matter, for I have specimens from foreign correspondents where the locality label defies interpretation. Specimens with lot numbers should never be sent out by the collector until properly labeled.

A New Proctotrypoid Genus from Australia (Hym.).

By ALAN P. DODD, Nelson via Cairns, Queensland.

Family SCELIONIDAE, Subfamily TELENOMINAE.

PLATYTELENOMUS nov. gen.

♀. Body completely flattened. Vertex of head very thin; head viewed from in front semi-circular; eyes large, slightly pubescent. Antennae slender, 11-jointed; the club slender, 5-jointed. Thorax nearly twice as long as wide; pronotum not visible from above, mesonotum as long as wide, without furrows; scutellum short, semi-circular; postscutellum short; metanotum rather long, with a median and two lateral lines of foveae separated by delicate carinae; the median line straight, the lateral ones curved. Venation as in *Telenomus* Haliday. Abdomen sessile, fusiform, no longer or wider than the thorax; second segment longer than wide, equal to two-thirds abdominal length.

This genus comes nearest to *Aradophagus* Ashmead but differs in having 11-jointed antennae.

Type.—*Platytelenomus planus* sp. nov.

Platytelenomus planus sp. nov.

♀. Length, 1.10 mm.

Shining black; legs (including coxae) and antennal scape and pedicel golden yellow.

Head and mesonotum with fine polygonal sculpture; rest of thorax smooth, shining. Abdomen with first and base of second segment striate; rest of abdomen smooth. Antennae 11-jointed; scape slender, equal to next four joints combined; pedicel twice as long as wide; funicle joints all longer than wide; 1-3 subequal, as long as the pedicel; fourth a little shorter; club slender, 5-jointed, the joints longer than wide; third joint slightly the longest and widest. Forewings reaching apex of abdomen; rather narrow, hyaline; longest marginal cilia equal to one-third greatest wing width; discal cilia fine and dense; submarginal vein attaining the costa a little before the middle of the wing; marginal vein short; stigmal vein rather long, oblique; postmarginal vein nearly as long as the submarginal.

(From 1 specimen, 2-3-inch objective, 1-inch optic, Bausch & Lomb.)

♂. Unknown.

Habitat.—North Queensland (Nelson, near Cairns). A common species in forest country.

Type.—South Australian Museum, a ♀ tagmounted plus a slide bearing head, antennae and fore wings.

Two new species of Psychoda (Dipt.).

By NATHAN BANKS, East Falls Church, Virginia.

Psychoda autumnalis n. sp.

Gray, with gray, black, and white hair; thorax with dark gray hair, interspersed with a few black ones, abdomen with rather paler gray hair, and not nearly as long as that on the thorax.

Antennae pale gray. Femora yellowish gray, tibiae similar, but with black middle and apical bands, separated by a white spot; tarsi black, first joint white on base, second and third almost wholly white.

Wings gray, with gray hair, each wing with two rows of about five black dots of erect hair across wing, both obliquely curved, first before and the second beyond the middle, the first one has the anterior and posterior spots much larger than the others, in the outer row the two spots behind are rather dislocated from the others; between the two rows and near the costa is another dot of black hair; the costal fringe is twice gray and black before the stigma, where there is a white spot, followed by two more before the tip; apical fringe black; posterior fringe brown, interrupted three times with white, not as long as one-half the width of the wing. The tips of the black veins tend to form spots on the margin; in some specimens there are other minute black dots of erect hair between the two rows. The forks

are equal, and arise before the middle of the wing, the wing is hardly acute at tip, and of moderate breadth.

Expanse: 5 mm.

From Washington, D. C., in November.

Psychoda aterrima n. sp.

Deep black throughout, with black hair, but that on thorax mostly brown, and some on costa of wing beyond middle, and also near tip are brown; at extreme tip are a few snow-white hairs, hardly discernible. Wings narrow, and acute at tips, the hairs at base and on basal part of costa are very long, many fully one-half as long as the width of the wing, the fringe on posterior margin also very long, longer than one-half width of wing; the forks of the two forked veins are equally long, and both begin before the middle of the wing; the wing is perhaps less hairy across the middle than elsewhere.

Expanse: 4.8 mm.

From Ithaca, New York, July. Differs at once from *P. niger* in deeper black color, longer hair, and narrower wings.

The types of both species are in the author's collection.

Technical Assistant in Malaria Investigations (Male).

The United States Civil Service Commission announces an open competitive examination for technical assistant in malaria investigations, for men only. The duties of this position will be to conduct laboratory studies of malaria, to make surveys of malarial regions, and to advise in respect to the prevention of the disease. Competitors will not be assembled for examination, but will be rated upon the following subjects, which will have the relative weights indicated: 1. General education and medical training 30, 2. Experience in laboratory studies of malaria 30, 3. Experience in making field surveys 20, 4. Publications or thesis 20; Total 100. Under the third subject credit will be given for experience in identifying different species of mosquitoes and their larvae, or conducting surveys of mosquito-breeding places, or applying practical measures for the prevention of malaria in a community. If a thesis is submitted under subject 4 it must present the results of original research work in some phase of malaria or other public health subject. Graduation from a medical school or college of recognized standing, and experience in laboratory technique connected with malaria studies, are prerequisites for consideration for this position.

No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 9, 1914.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., MARCH, 1914.

On Writing History.

History is very interesting if true, and it becomes equally ridiculous if untrue. History to be respected should be accompanied by references to sources of information.

In the Bulletin of the Brooklyn Entomological Society, Volume 8, page 54, is an account of what happened to the Say collection. According to this account it was sent (some time) from New Harmony (Indiana) and was stored unopened in Philadelphia and forgotten. How long it was forgotten is not stated. "Nearly twenty years later it was resurrected and sent to Thaddeus W. Harris, State Entomologist of Massachusetts, and a very notable man."

In the same journal, Volume 8, page 111, is a letter from Charles Christoph Andrew Zimmerman to Dr. W. T. Harris. This letter is dated Columbia, S. C., June 9th, 1841. In it he pays his respects to Philadelphia, and refers to the Say collection, then in the hands of Dr. Harris.

Thomas Say died October 10th, 1834. Making no allowance for the time his collection remained in New Harmony and the time it was forgotten in Philadelphia and the time it took to send it to Massachusetts, "nearly twenty years" from the date of his death only, would make nearly the date 1854.

H. S.

An Ant Story.

Near Lawton, Okla., according to a story said to be fact, the sportsmen of that town have established a shooting range. At the end of the range a great many mound-building ants had established colonies, and naturally some of the spent shot dropped in that vicinity. It was discovered that the ants in gathering the round granite pebbles for their mounds had also carried a great quantity of shot and mingled it with the tiny particles of stone. More than fifty pounds of shot were taken from the mounds investigated.—*Bulletin, New York Zoological Society*, Sept., 1913.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Naphthalene and Fleas (Siphonap.).

In June, 1913, while giving a bath to an orphan kitten which had been adopted several months before, I noticed some fleas upon it and not desiring to have the animal infested nor to have the house stocked with such dangerous insects, I thought over the possibility of killing the latter. Besides kerosene oil and soap, the only other available insecticide was napthalene in the form of the usual napthalene or moth balls used for keeping among clothes. It was thought undesirable to use kerosene, while ordinary soaps seemed likely to be inefficient. The only hope then seemed to be in the napthalene. I took three or four balls of it, therefore, and crushed them into a fine powder by wrapping them in a piece of burlap and using a hammer. Holding the kitten over a large sheet of paper placed over the floor of the veranda, I rubbed the powder into her fur, working from behind toward the head and including the tail and legs. After several minutes, the insects became noticeable about the head, especially around the eyes and at this stage I commenced to remove them by hand, killing each one in succession by crushing it with the hammer. In this manner, after about five minutes, thirty or more of the insects were successfully killed and the kitten seemed to be free of them.

About a week previous to this, another older kitten had been obtained and it seemed to be likely (and was found to be so) that the young kitten had gotten the fleas from this comparative stranger. So she in turn was given the same treatment with the result that over a hundred and fifteen of the vigorous insects were killed; this time a few escaped, though most of them were quite stupid and did not hop when placed upon the paper; in fact many dropped off. In this case also, however, a few of the insects remained upon the cat; a half hour after finishing, I went to the cat again and found six grown fleas, stupidly resting upon the top of the fur whence they were easily caught and killed. It was decided, after such toward results to repeat the treatment after a day's time, so as to allow the animals to pick up, as it were, any of the insects which may have escaped into the house. This was done, with the result that about a half dozen fleas were obtained from the young kitten and about fifteen from the older one. The animals then seemed to be quite free from infestation but the treatment apparently made them ill for about a day or so; the most noticeable symptoms were loss of appetite and an inclination to lie about instead of, as was usual with the younger kitten, continually running about and playing. The

older of the two animals refused nearly all food for two whole days following the treatment. But the latter does not seem dangerous and is certainly a cleanly and desirable agent for the purpose of ridding household animals of dangerous parasites.— A. A. GIRAULT, Nelson, Queensland.

Sequelae of Human Verruga Case Traceable to Phlebotomus verrucarum (Dipt.).

A preliminary notice of Mr. Nicholson's case, dated November 10, 1913, appeared in the January, 1914, issue of the NEWS. The following data bring the record up to date:

Nov. 10, 1913—Received 30 cc. neosalvarsan intravenously in left arm.

Nov. 15—Fever subsided for good. The fever had lasted with practically no absolute intermission for three weeks, from October 25 to November 15, but ranging all the way from slightly above normal to close on 40 deg. C. The temperature was very irregular, but usually lower in mornings and highest in evenings. During this period pains were pronounced in back of neck, cervical region and knees, more so in mornings. Also during this period the *Bartonia bacilliformis* Strong et al. was present in numbers in the red cells, as attested by Dr. A. L. Barton and shown in numerous smears.

Nov. 15 to 30—Pains were most prominent in the ankles, knees, wrists and finger joints, especially in mornings. During the first several days of this period the temperature ranged distinctly below normal, and no *Bartonia* was found in the blood.

Dec. 1 to 24—Acute pain internally in region of spleen but not affecting that organ, very sharp at start and very gradually wearing away until completely disappeared about Dec. 24 or 25. At beginning of this period the pains in joints ameliorated and disappeared.

Dec. 24—The first sign of eruption appeared, being a minute red point on back of right hand next wrist. This very gradually increased in size, almost imperceptibly at first but rather more rapidly later on, until on Jany. 26, 1914, it has become a perfectly circular well-raised papule 3.5 mm. in diameter. Its initial stage seemed miliar, but its present state must classify it as nodular.

Dec. 28—Several minute eruptive points like preceding on ankles.

Jany. 8, 1914—Typical nodular papule of considerable size suddenly appeared on outside of right forearm next elbow, about 2 to 3 mm. in diameter.

Jany. 12—Several minute points just back of original papule on right wrist.

Jany. 14—One large nodule, about the size of a pea, on right thigh outside, accompanied by several smaller ones.

Jany. 17—Small ones in great numbers have appeared on feet, ankles, shins, knees and thighs.

Jany. 19—Several larger ones on knees and calves.

Jany. 21—Very many small and minute ones on hands and fingers.

Jany. 25—More large ones on right thigh.

Mr. Nicholson has not been exposed to any verruga infection since he left the hospital on Nov. 22, 1913, not having entered the verruga zone from that date to date of eruption, and not having been within the verruga zone at night since Nov. 6, 1913.

It is quite certain from these facts that both the Bartonia bodies

and the eruption have resulted in this case from the Phlebotomus bites of Sept. 17, 1913, to which were added a half dozen bites on the night of Nov. 6, 1913. It is practically certain that only one species of microbe was transmitted during the bites of the Phlebotomus.

The injection of neosalvarsan produced a slight temporary diminution of the Bartonia bodies, according to Dr. Barton. They shortly increased again. It is indicated that this drug, in larger quantity and frequently repeated, is a specific against the disease.

A complete history of this case will eventually be published by Dr. Barton.—CHARLES H. T. TOWNSEND, Chosica, Peru, January 26, 1914.

Control Work Against Forest Insect Depredations in the Hetch Hetchy Watershed of the Yosemite National Park (Coleop.).

Special investigations by the experts of the Department of Agriculture have shown that as much as 95 per cent. of the timber in some of the canyons and valleys of the Tuolumne River, which is to supply the water for the Hetch Hetchy project, has been killed by bark-boring insects.

The areas in which practically all of the timber has been killed, some of it many years ago, are Jack Main Canyon and Matterhorn Canyon. It was found that the forest growth of the entire watershed was more or less affected, and that the destructive insects were killing a great amount of timber from near Tenaya Lake through the forests surrounding Tuolumne Meadows to and through Virginia Canyon.

This alarming condition, affecting as it did the scenic beauty of the area north of the Yosemite Valley and its consequent effect on the water supply and general economy of the Hetch Hetchy project, presented a problem of great importance.

As soon as the matter was called to the attention of the Secretary of the Interior in the fall of 1912, he appealed to the Secretary of Agriculture for such advice and assistance as his Department could render through the expert who has charge of the forest insect branch of the Bureau of Entomology.

The matter received the required prompt attention and arrangements were soon made for active warfare against the depredating beetle. A plan of procedure was outlined by the expert and recommended by the Secrtary of Agriculture to the Secretary of the Interior. According to the plan, the Interior Department was to allot the required funds, the control work to be carried on under the immediate supervision of an entomological assistant of the Bureau of Entomology. This plan was adopted and the work was started just as soon as the weather conditions permitted in June, 1913.

The areas near Tenaya Lake and in the Cathedral Basin around Tuolumne Peak to the Tuolumne Meadows were carefully cruised for

the location and marking of the particular trees, in the bark of which the broods of the destructive beetle had passed the winter. Two areas representing centers of infestation were thus located and designated—one as the Tenaya Project, the other as the Cathedral Project.

Control work was started on the Tenaya Project on July 1, and finished when the beetles began to emerge from the bark on July 24. Work on the Cathedral Project was started on September 8, after the beetles coming from the overwintered broods had entered the bark of the living trees, and was completed on October 7.

The method recommended and followed was to fell the infested trees, lop off the limbs, pile them on the prostrate trunk, and set fire to it; thus the infested bark was scorched or burned to a sufficient extent to kill the broods of the insects. The trees thus treated ranged in diameter from 6 inches to 54 inches with the average of about 22½ inches.

One thousand, six hundred and seventy-one trees were treated in the two projects, at a cost of $1158, including all expenses except the salaries of two representatives of the Bureau of Entomology who directed and assisted in the work.

It is claimed that this work, with an additional expenditure of about $500 next season, will be sufficient to bring the beetle under such control that very little attention will be required to protect the remaining living timber from further serious injury. Both this and an infestation in the timber around the rim of the Yosemite Valley will receive the required attention next season. The Interior Department has expressed a determination to prosecute a warfare against the depredations of insects in the Yosemite and Glacier National Parks to the limit of the funds available for the purpose.

The insect which is directly responsible for the death of such a large percentage of the lodgepole pine timber of the northern section of the park is the mountain pine beetle (*Dendroctonus monticolae* Hopkins). It attacks perfectly healthy trees and kills them by mining between the bark and wood in such a manner as to stop the movement of sap and kill the bark which results in the final death of a tree within ten to twelve months after it is attacked. This beetle is the most destructive enemy of the lodgepole pine, western yellow pine, and mountain or silver pine of the entire Pacific Coast and Northern Rocky Mountain region. A vast amount of the best timber of these regions has been killed by this beetle during the past fifty years and has gone to waste through the agencies of decay and forest fires, but, thanks to the discoveries of the experts of the Bureau of Entomology, it can now be controlled and a great waste of forest resources prevented in the future.—*Office of Information, U. S. Dept. of Agriculture,* Washington, D. C.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted, always excepting those appearing in the January and February issues of the News, which are generally dated the year previous.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

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MACROLEPIDOPTERA by PROF. DR. A. SEITZ.
Critical Remarks by WILHELM LEHR, Baltimore, Md.

The issue of Volume II of "Macrolepidoptera of the World," by Prof. Seitz, concludes the palaearctic part of this great work, in so far as "Moths (Tineidae) and Spinners" (Bombycidae) are concerned. This volume is quite extensive, containing fully 440 pages of text alone, irrespective of the index.

It represents, like Volume I, the "Butterflies," the most complete work of its kind known to-day in this line of literature. Above all, it contains the pictures of almost all the species of the Amur Region, of Turkestan, of the Caucasus, of Persia, of Syria, etc., many of these illustrations appearing for the first time.

The text of this volume was compiled by nine authors, generally known as reliable authorities on Entomology. In this respect it certainly is astonishing that notwithstanding the "many cooks," a pleasing uniformity in the book, in regard to text as well as to the plates, could be obtained, which uniformity does not appear in so marked a degree throughout Volume I.

The following figures are intended to give an idea of the thoroughness of the volume in question:

In the catalogue of Staudinger-Rebel, which appeared thirteen years ago, 238 forms of Zygaenidae were enumerated, while "Seitz" lists 418 Zygaenidae of the palaearctic region; of Saturnidae "Seitz" has 122, against "Staudinger-Rebel's" 31. Furthermore "Seitz" describes 329 Sphingidae against 100 mentioned in the "Stgr.-Reb." catalogue; of Cymatophoridae 86 are given in the "Seitz," while in "Staudinger's" work only 23 are shown; of Limacodidae 46 are found in the "Seitz," whereas 15 are accounted for in the catalogue mentioned above, etc.

All in all, this volume describes about 300 species (or varieties) of Spinners, besides about 300 Sphingidae. The number of colored figures on 55 plates amounts to nearly 2400. If it be taken into consideration that the Moths and Spinners in the Staudinger do not quite number a thousand (to which, of course, some varieties are to be added); one must readily admit that our knowledge of the palaearctic region, with reference to Entomology, approaches completion, by means of this gigantic work.

The reliability of the text, it must be said, can only be judged by scientists versed in this line, or by specialists of the palaearctic Fauna. The names of the authors, who contribute to this work, are so well known in the scientific world that one may readily place confidence in their ability, their statements and their scientific work.

By reading a chapter of the "Seitz," it will doubtless be perceived that the numerous serviceable hints on catching butterflies and caterpillars, on their raising and mode of living, etc., are based upon personal experience; and that furthermore the author himself has personally bred the principal representatives of almost all the species, whether they live in the Amur region, or in Syria, or in Mauretania, etc.; he has, at any rate, viewed them alive. The vast information on feeding-plants, on methods of catching the animals, etc., are of the utmost importance to any collector. For is there any other book, which, for example, mentions at what hour the caterpillars of *Emydia striata* must be collected, in order to obtain the greatest quantity of them; or one, which cautions against delay in taking in the *Ognogyna* caterpillars, and admonishes collecting them, before the grass has grown so high that they are completely hidden from sight?

As in the first volume the plates are the most essential and predominant features of the work, so they are in the second also. If anyone should deem this assertion to be too bold, that it was left to the "Seitz" to teach the world and show what real good pictures are, he certainly ought to make a critical comparison with other works of this kind. The average collectors are, of course, satisfied with the

illustrations in the new "Berge," and everybody admits that the butterflies illustrated therein, in that complex mixed company in which caterpillars, plants and butterflies are placed together upon a tinted background, present an attractive picture. But, alas! how do these "pictures" compare with those of the "Seitz," taken from a scientific viewpoint, which is of the greatest importance to the collector? If, for instance, a *Batis* in the "Seitz" is entered into competition with the corresponding picture of a *Batis* in the "Berge," plate 28, figure 49, *e*, a vast difference manifests itself. This also applies to the illustrations of the Vienna peacock's-eye-butterfly! Looking at plate 29 of "Berge," without comparing real nature, one is well pleased with the *pyri* picture, fig. 1, *b;* but a comparison with the figure in the "Seitz," table 31*b*, discloses the mistakes of the former at once. The borders and the ground of the wings of *pyri* are in the "Berge" yellowish-red, whereas, in reality, they are *grey,* as correctly depicted in the "Seitz." Of course the representation of *pyri* in the "Seitz" does not make a brilliant showing, as only one-half of the insect is illustrated, which is furthermore not as finely touched up, in order to be in accordance with real nature, and because it does not show any head. But by comparing it with a specimen in one's collection, it is at once evident, that, viewed from above, all *pyri* seem to be headless, as also *spini* and *pavonia*. The picture in the "Berge," which shows a big head, is nothing but a phantasm, while the half-picture in the "Seitz" is pure, genuine nature. It is therefore to anybody, who earnestly intends to work in Entomology, far more valuable, than the "trimmed-up" and "pleasingly grouped" illustrations of amateur-works.

This point apparently so accessory has been mentioned quite intentionally, as there is a species closely resembling *pyri*, namely *atlantica*, on which, viewed from above, the fore-head is clearly to be seen. As the plates in the "Seitz" are admittedly scientific in their preciseness, everybody may find in them a productive source of entomological perception, and an inexhaustible spring of pleasure. To convey an idea of the number of plates contained in the different volumes of "Seitz," so far printed, it must be mentioned, that up to last year they already exceeded 500.

As it is, the author has unquestionably earned well-deserved praise with the eminently satisfactory issue of the Second Volume of Macrolepidoptera. In the meantime Volume III has also been finished, and Volume IV is nearly completed. It goes without saying, that these later volumes are just as excellent in every particular as the two former ones.

"Macrolepidoptera of the World" is also published in a separate English edition by the Verlag des Seitz'schen Werkes, Stuttgart, Germany.

Doings of Societies.

ENTOMOLOGICAL SECTION, ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

Meeting of November 20th, 1913, Mr. Philip Laurent, Director, presided. Ten persons were present.

Dr. Calvert exhibited a specimen of *Erythrodiplax berenice* Drury (Odon.), a salt marsh species from Philadelphia, August 1st, 1909, by G. M. Greene. This is the third Philadelphia record.

Dr. Skinner exhibited a picture of the store that was formerly situated at the northwest corner of Second and Market Streets, Philadelphia, occupied as a drug store by Speakman & Say, the first meeting place of the Academy of Natural Sciences of Philadelphia, in 1812. The Say mentioned was the father of Thomas Say, called the father of American Entomology.

Mr. Laurent said he had collected specimens of *Colias philodice* as late as November 7th, showing the mildness of the present fall.

Mr. J. R. Malloch was elected an Associate of the Section.

Meeting of December 8th, 1913, Mr. H. W. Wenzel, Vice-Director, presided. Nine persons were present.

Dr. Calvert exhibited two lantern slides, showing a beetle, *Pachyteles seriatoporus* Chaudoir, taken in a bromeliad, at Juan Vinas, Costa Rica. He called attention to certain structures of the legs, viz.: a spine on the first femur and a groove armed with a row of stiff hairs on the first tibia as quite similar to the apparatus known as the antenna-cleaner of the bees and ants; he supposed that these parts of the beetle may be used for the same purpose. Mr. Wenzel said he had not observed any beetles using such an apparatus for cleaning the antennae. Mr. Liebeck thought the apparatus was used for holding objects of prey.

Mr. Hornig reported finding salt marsh mosquitoes (*Aedes sollicitans*) at Cobb's Creek and Clearview, Pennsylvania.

He mentioned the prevalence of mosquito larvae in the Philadelphia sewers in various places. He found thirty-two and forty-eight eggs respectively in two specimens of the Lubber grasshopper from Louisiana.

Mr. Greene announced the death of Mr. R. Godfrey, an Associate of the Section.

Mr. Ellwood R. Casey was elected an Associate.

The following were elected officers to serve for 1914:

Director—Philip Laurent.

Vice-Director—Henry W. Wenzel.

Treasurer—Ezra T. Cresson.

Conservator—Henry Skinner.

Secretary—James A. G. Rehn.

Recorder—Henry Skinner.

Publication Committee—Ezra T. Cresson, Ezra T. Cresson, Jr.

Meeting of January 22nd, 1914, Mr. Laurent, Director, presided. Ten persons were present, including Mr. W. T. Davis, of Staten Island.

Dr. Calvert exhibited eggs, triungulin larva, pupa and imago of *Hornia gigantea* Wellman (Col.), presented on behalf of Mr. F. X. Williams, who described and figured them in the NEWS for January, 1914.

Mr. Laurent presented *Noctua treatii* and the fall form of *Plusia precationis*.

Mr. Davis described a box for containing vials of alcoholic specimens devised by Mr. Sleight. He also described a device for mounting small insects on card points.

Dr. Calvert read a letter from Dr. A. D. MacGillivray in relation to the so-called antenna-cleaner of the Coleoptera. Dr. MacGillivray said the structure was common in the Carabidae and was well represented in *Harpalus caliginosus*. Dr. Calvert sketched the apparatus in *Harpalus* and pointed out how it differs from that of *Pachyteles*. He called attention to Packard's mention of this structure (*Text Book of Entomology*, page 97).

Mr. Rehn exhibited specimens of three species of grouse lo-

custs (Acrydiinae), illustrating the retention of a nymphal type of pronotum in adults of several species. The tegmina and wings could be seen on careful examination, but being largely hidden under the pronotum they could be easily overlooked and the specimens mistaken for nymphs. This condition of the pronotum is known to occur in four species of two genera, two of the forms being African, one Australian and the other, which is new, as far as known, is only found in the southeastern United States.

Mr. Laurent called attention to a beautiful variety of *Colias caesonia* described by Jerome McNeill in the *Canadian Entomologist* for 1889 as *Colias caesonia* variety *rosa*. The speaker stated that this variety was found in many of our large collections intermingled with *Colias caesonia*. The specimen in his own collection had been attached to the label *Colias caesonia* for more than twenty-five years, until Mr. Roswell C. Williams called his attention to its being the variety *rosa*. Specimens of *Colias caesonia*, as well as variety *rosa* were exhibited.

HENRY SKINNER, *Recorder*.

OBITUARY.

James John Rivers.

James John Rivers, well known to students of the Lepidoptera and Coleoptera, died at his home in Santa Monica, California, on December 16, 1913, at the age of nearly ninety years. He was born in Winchester, England, January 6, 1824. He studied medicine at the University of London, where he came under the influence of Thomas Henry Huxley; he attended Faraday's lectures and became acquainted with Charles Darwin and Alfred Russel Wallace. He attended the meetings of the Entomological Society of London, where he met Stainton, Douglas, Robert McLachlan, T. Vernon Wollaston and others. He knew Francis Walker and G. R. Crotch.

He lived and collected in Devonshire and other parts of England. He left his native country about 1867 for the United States, settling first in Junction City, Kansas; he was associated with the late Dr. Snow at the University of Kan-

sas; was in Denver for a short time and about the middle of the seventies came to Berkley, and became a Californian naturalist for the remainder of his life. He became acquainted with all the scientists of the State and played leading parts in all the various activities, including the California Academy of Sciences. He was one of a little group of naturalists, including Behr, Behrens, Stretch, Harford, Lockington, Dunn and others, who met informally and were known as the Arthrozoic Club.

Rivers was Curator of Organic Natural History in the University of California until he resigned about 1895, and removed to Ocean Park and Santa Monica, where he resided till his death. Prof. Rivers, as he was generally and affectionately called, ranged over nearly the whole of the natural sciences; he was a representative of the old time naturalists. He studied and published papers on living and fossil shells, Coleoptera, Lepidoptera, spiders, reptiles and collected plants. His published papers are mostly in the *Proceedings of the California Academy of Sciences, Bulletin of the Southern California Academy of Sciences, Zoe, Papilio* and *Entomological News*. Rivers, with the late L. E. Ricksecker, was the first to work out the interesting life history of *Pleocoma;* he studied the habits of a new Californian turret building spider named in his honor by Cambridge; he described a new *Amblychila,* and in the Lepidoptera was especially interested in the genera *Melitaea* and *Clisiocampa*. His last paper was published only a short time before his death, in the *Bulletin of the Southern California Academy* for July, 1913, being a description of a new fossil shell from San Pedro.

J. J. Rivers was a real naturalist, and to have known him was a great privilege. His little workshop and museum behind his house in Santa Monica, filled with books and specimens, will always be remembered by those who were ever in it.

F. GRINNELL, JR.

DR. ARNOLD PAGENSTECHER, well known for his work on the Lepidoptera, died in Wiesbaden, June 11, 1913. He was born in 1837.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued

Wanted—Pupae of *Papilio ajax* and *rutulus*.—Ward's Natural Science Establishment, 84 College Ave., Rochester, N. Y.

Mordellidae (Coleoptera) wanted from all parts of the world for cash or exchange. Also desire to exchange North American Coleoptera.—Alan S. Nicolay, 416a Girard Ave., Brooklyn, N. Y.

Wanted—North American specimens of the following European Heteroptera: *Dasycoris pilicornis* Burm.; *Gastrodes ferrugineus* Linne; *Gonianotus marginepunctatus* Wolff; *Microtoma atrata* Goeze; also the following: *Orsillus scolopax* Say: *Acantholoma denticulata* Stal; *Agrammodes costatus* Uhl. and *Galeatus peckhami* Ashm.—J. R. de la Torre Bueno, 14 Dusenbury Place, White Plains, New York.

Hydroporus and Deronectes—Species of these and allied genera wanted from all parts of the world, either by purchase or exchange. Specimens must be perfect, but not necessarily named.—John D. Sherman, Jr., 403 Seneca Ave., Mount Vernon, N. Y.

Lepidoptera—Prime specimens of butterflies from this section (either spread or papered) in exchange for other North American species new to my collection.—R. A. Leussler, 1137 So. 31st St., Omaha, Neb.

Wanted for Cash—Fertile eggs of *Attacus atlas*, *Attacus edwardsii* in season or for exchange for *Actias mimosae*, *Antheraea pernyi* and other exotic and native eggs.—A. J. Potter, East Killingly, Conn.

I have for exchange live pupae of *Ph. achemon*, *H. aurora*, *P. sexta*, *P. asterias*, *P. quinquemaculata*, *T. polyphemus*, *E. tilyrus*, *chersis* and *A. octomaculata*, also lot of dupls. in papers from Europe. Wish pupae from Arizona, California or Mexico.—J. N. Lang, 1433 So. 59th Avenue, Cicero, Ill.

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Coccidae—California Coccidae exchanged for specimens from all parts of the world.—E. O. Essig, Secretary State Commission of Horticulture, Sacramento, Cal.

Wanted—Geometridae from the Southern, Middle and Western States. Offer in exchange liberal numbers of Texan Lepidoptera.—Dr. F. W. Russell, 4119 Cedar Springs Road, Dallas, Texas.

Wanted—Insect Life, Vol. V, No. 5, and Bibliography of American Economic Entomology, No. 4. Write offer.—Geo. M. Greene, 1303 N. 54th St., Philadelphia, Pa.

Miss Sarah Maul, 14 Channing St., N. W., Washington, D. C. Collector and breeder of Lepidoptera. Purchasers wanted.

The undersigned will greatly appreciate receiving records of New Jersey species not listed in Smith's Insects of New Jersey.—Harry B. Weiss, 272 Hale St., New Brunswick, N. J.

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